

FIG. 2

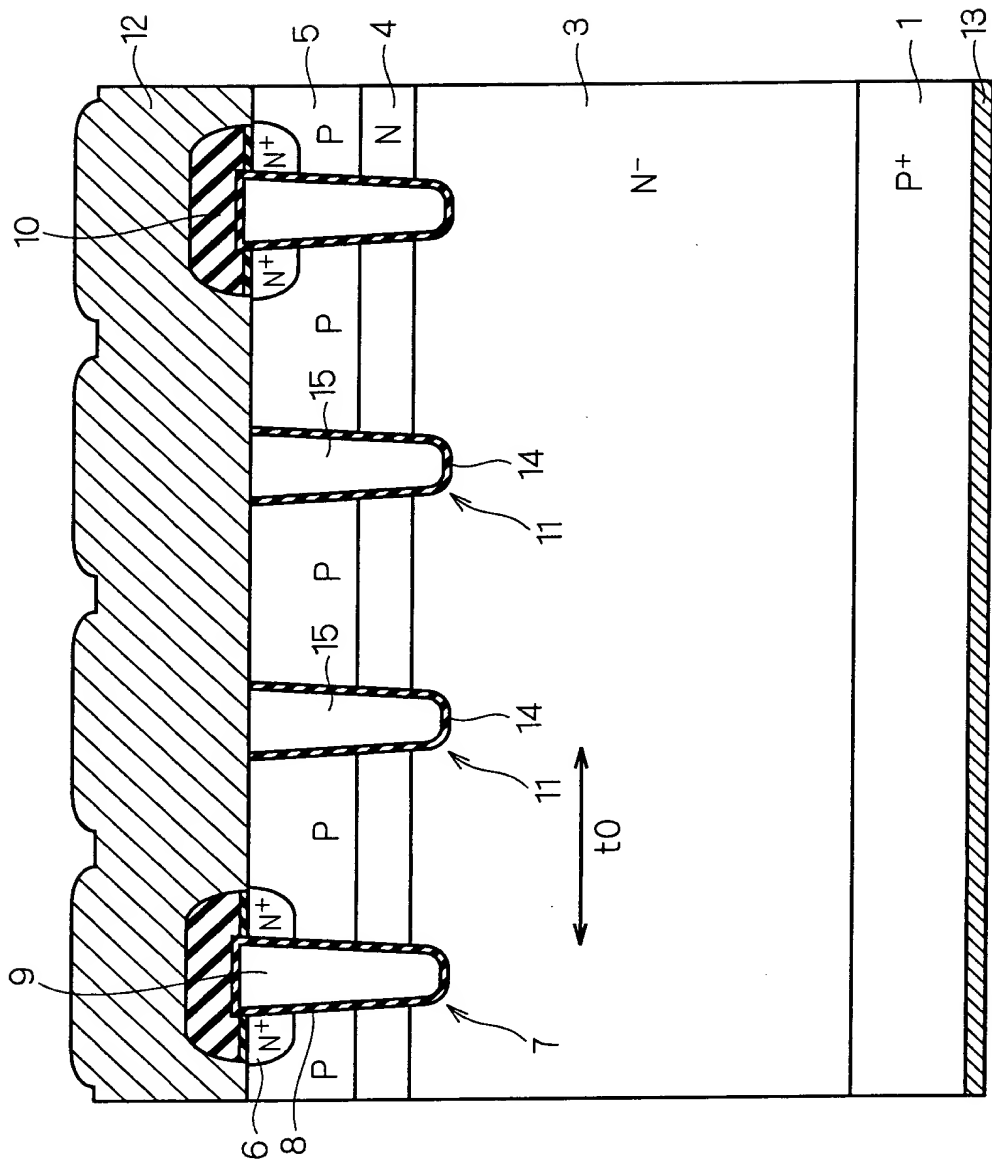


FIG. 2

[illegible]

This diagram illustrates a cross-sectional view of a semiconductor device. The device features a substrate (1) with layers labeled  $N^+$ ,  $P$ , and  $N$ . On the substrate, there are several vertical structures (12, 13, 14, 15) that are separated by regions (11). These structures are surrounded by a material (10). The diagram shows two states of the device, separated by a time interval  $t_0$ . The structures are labeled with numbers 1 through 15, and the regions are labeled with  $N^+$ ,  $P$ , and  $N$ .

**OBLON, SPIVAK, ET AL**  
**DOCKET #: 215551US2**  
**INV: Hideki TAKAHASHI**  
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FIG. 5

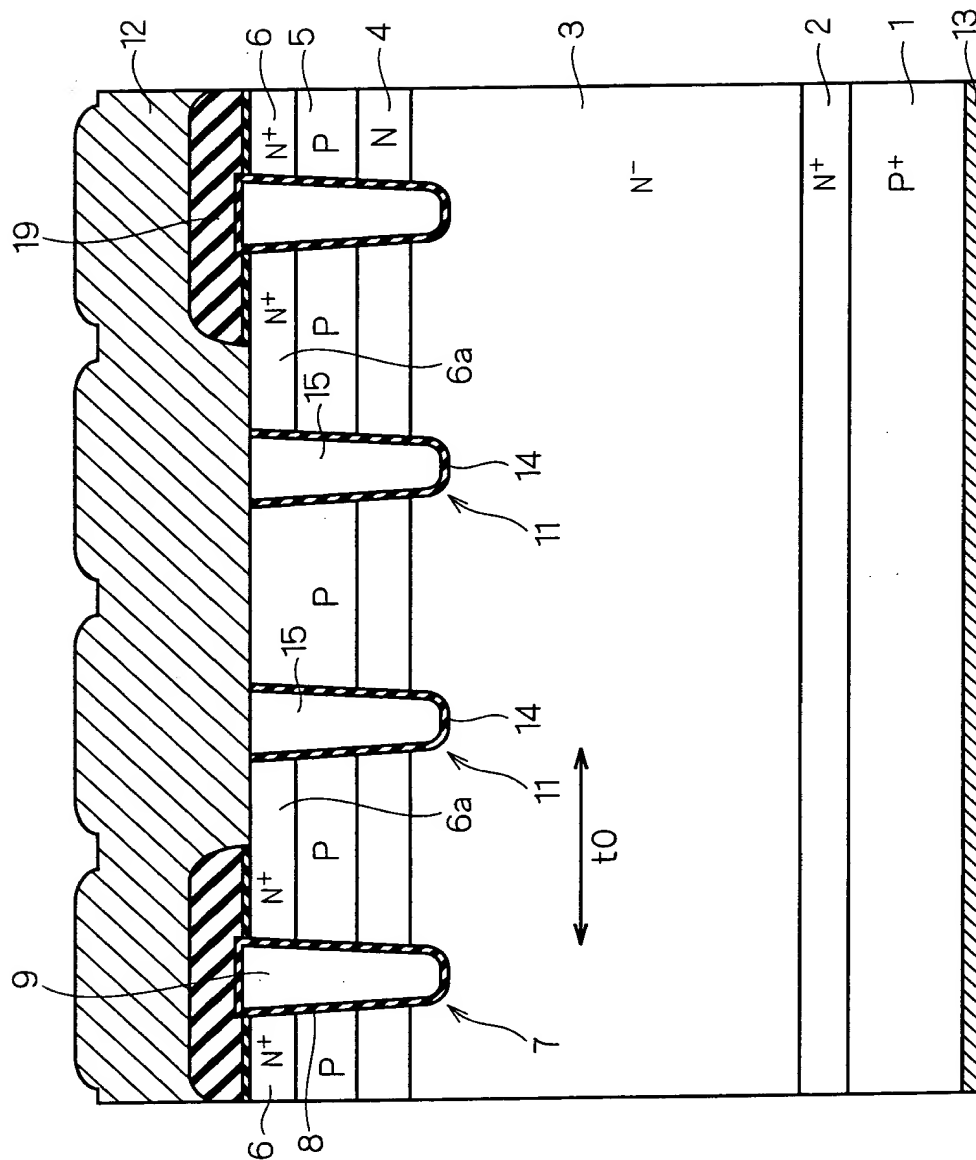
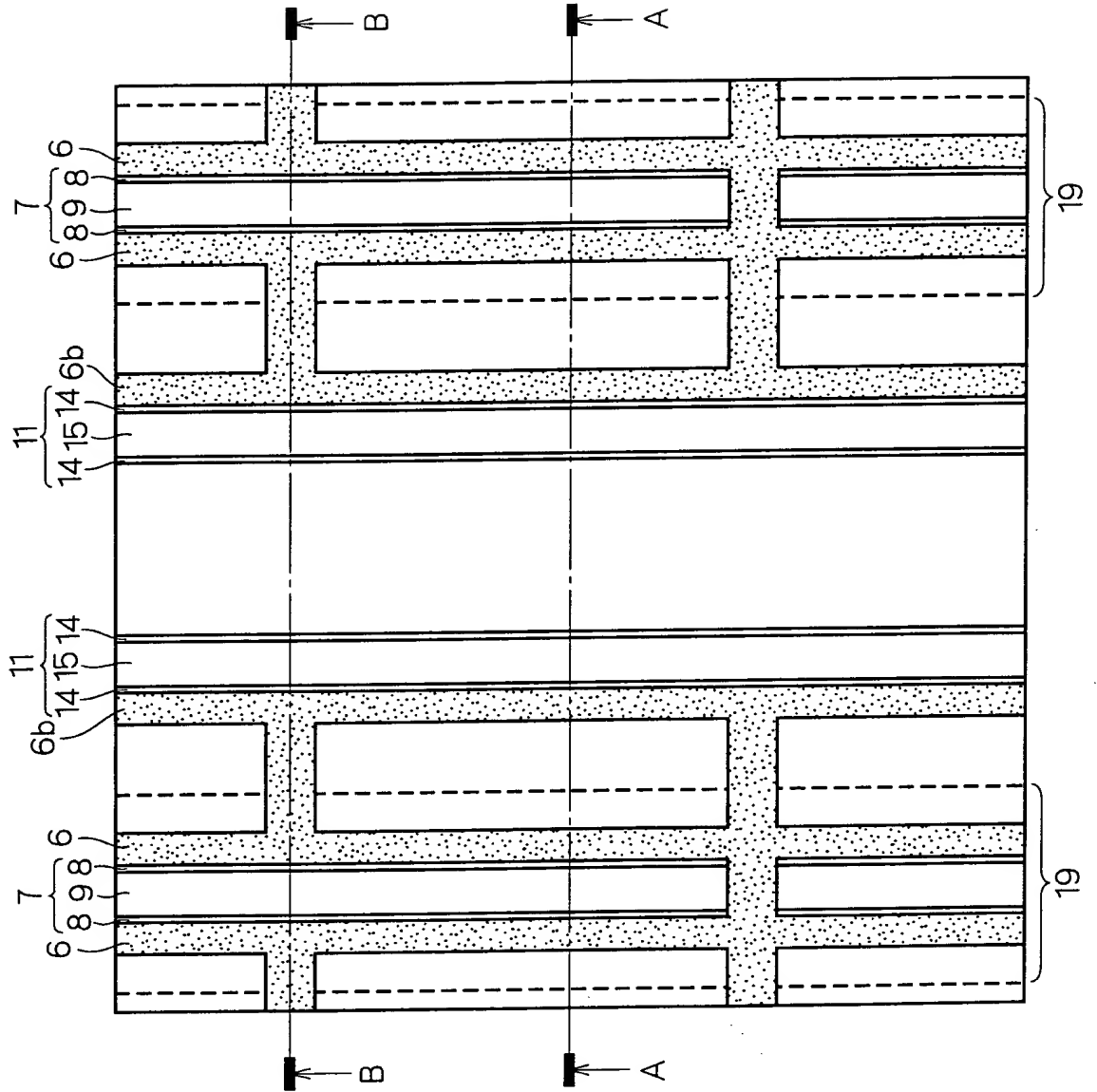


FIG. 6



[illegible]

FIG. 8

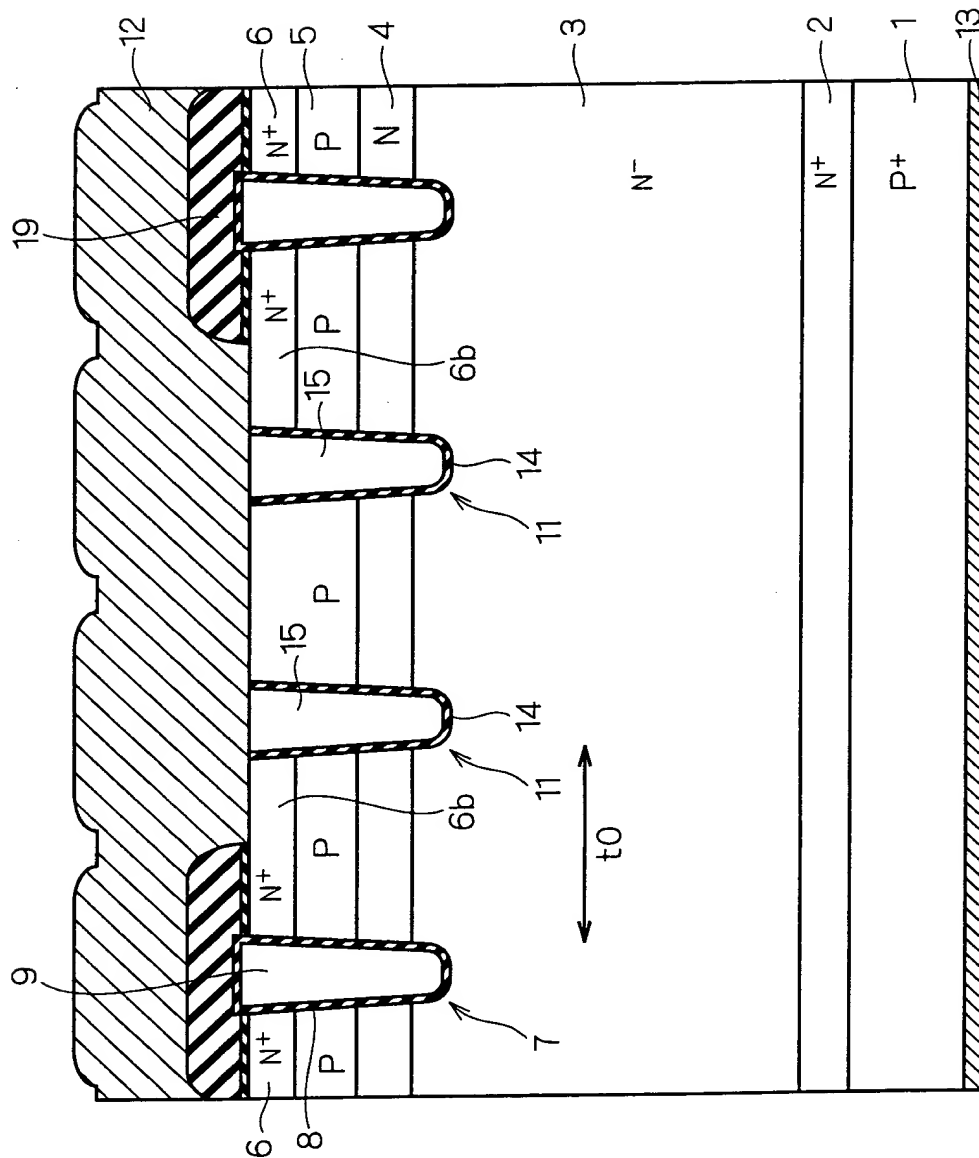
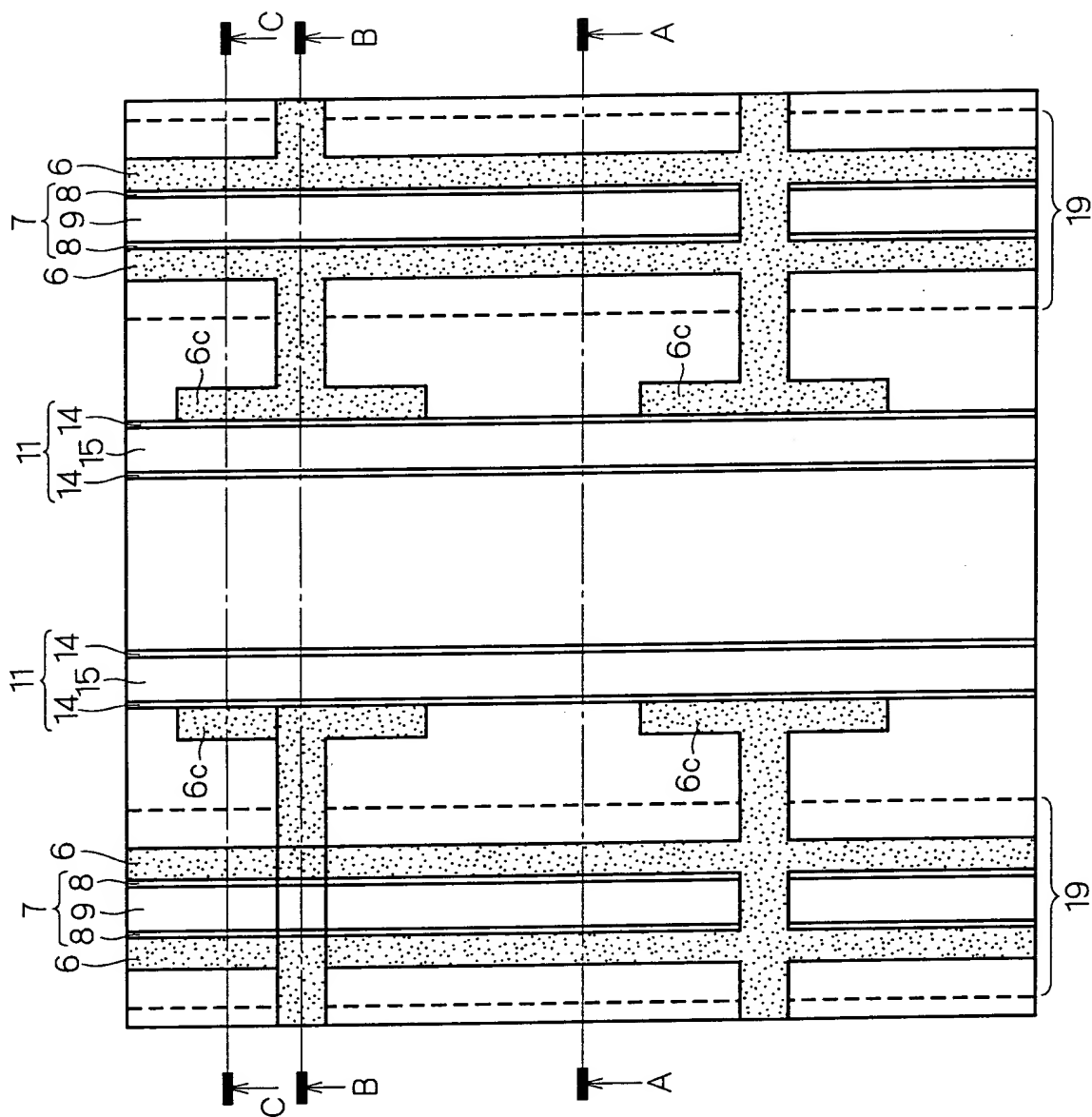


FIG. 8



FIG. 9



[illegible]

FIG. 11

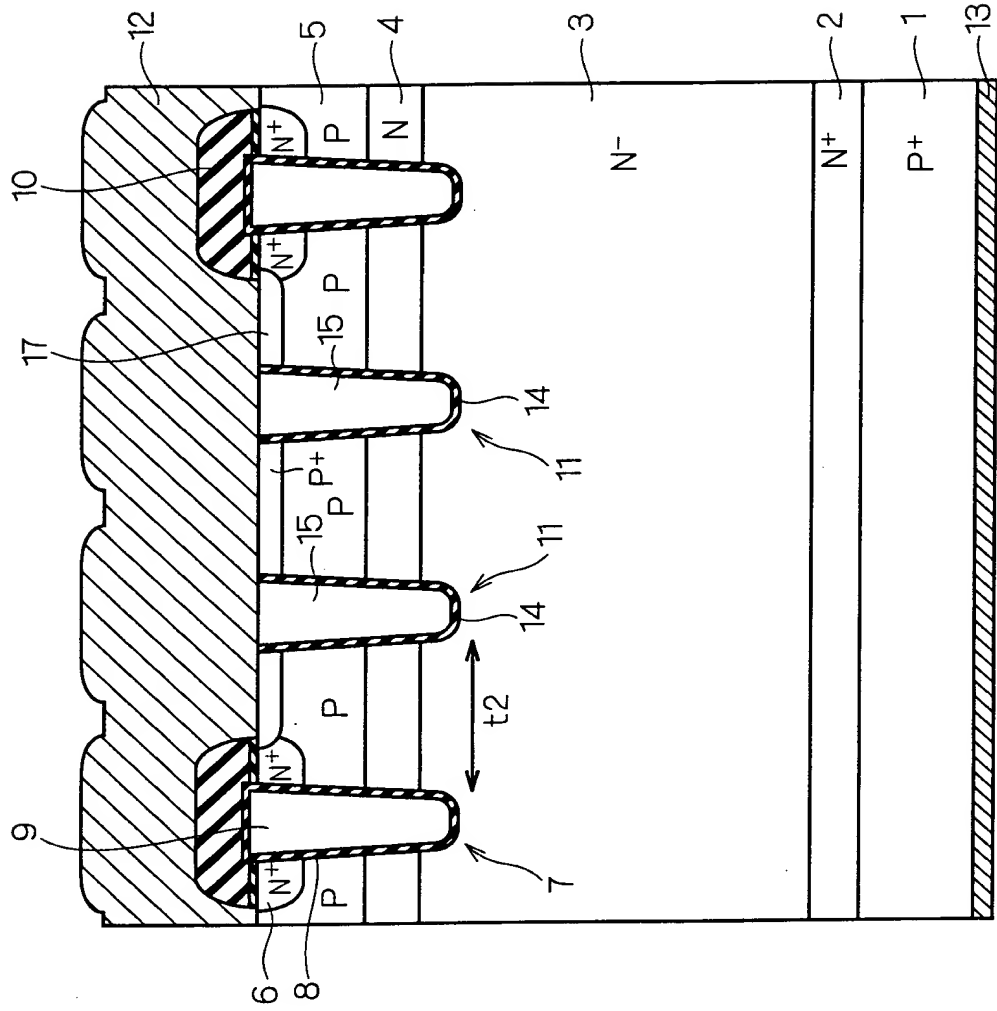


FIG. 12

FIG. 12



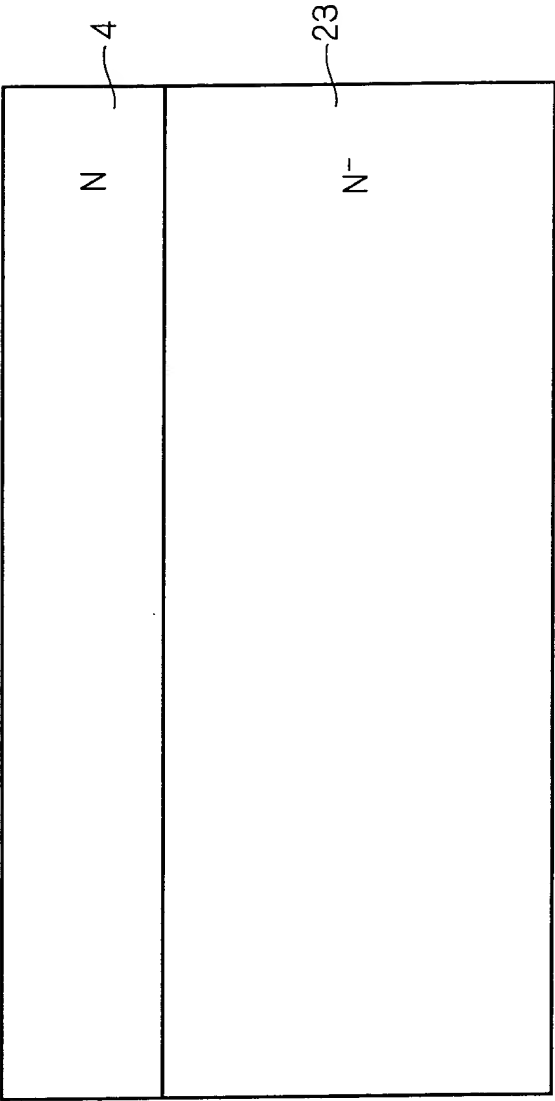


FIG. 13

FIG. 13

FIG. 14

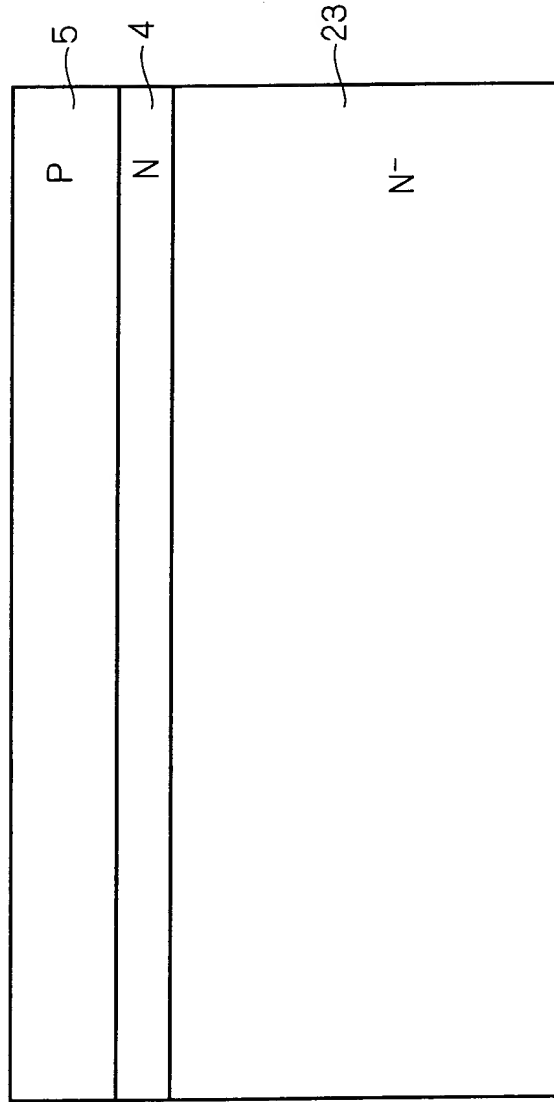


FIG. 15

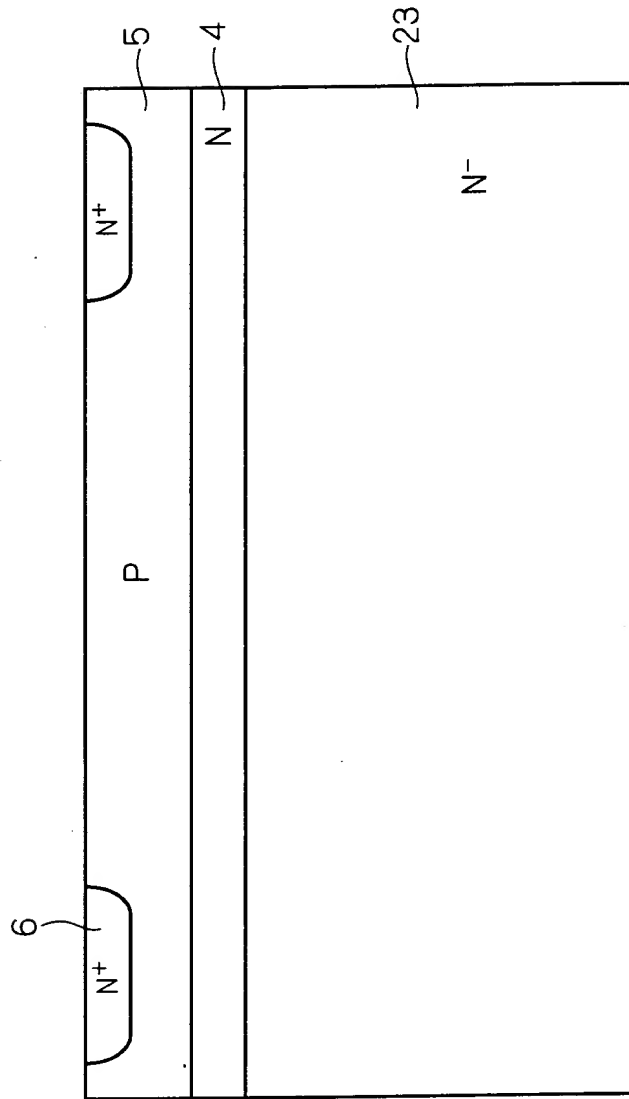
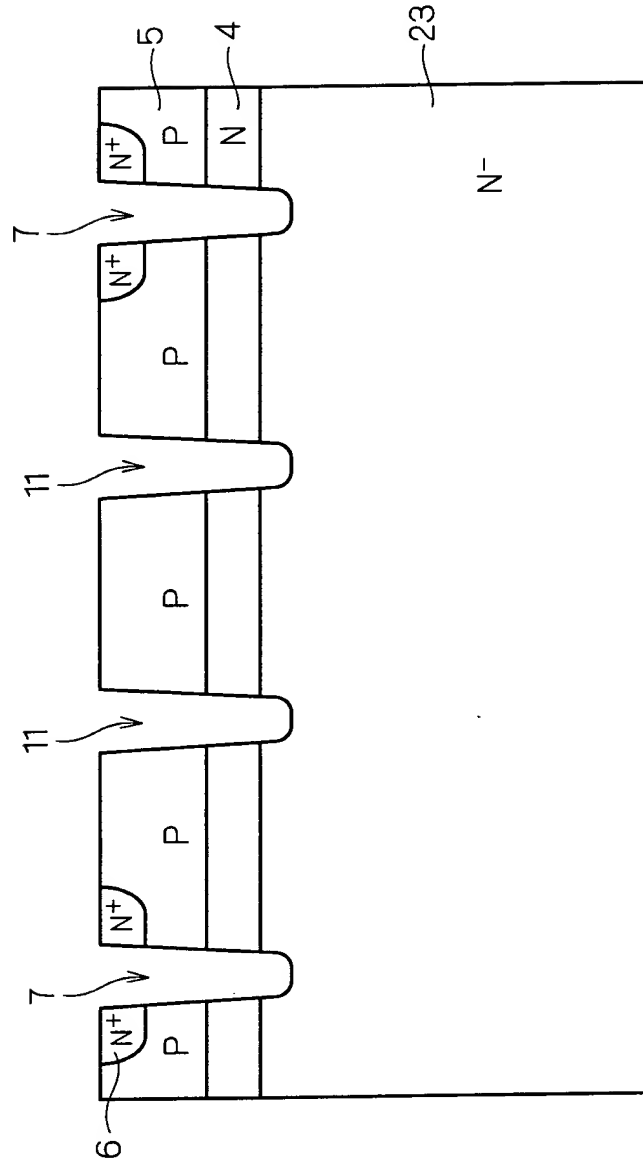


FIG. 16





This diagram shows a cross-sectional view of a semiconductor device. A substrate 23 is shown with a P-type region 4 and an N<sup>+</sup> region 5. A wavy conductive layer 7 is deposited on the substrate. The layer 7 has a dashed pattern on its top surface. The layer 7 is shown in four segments, each labeled with a P-type region 6 and an N<sup>+</sup> region 18. The layer 7 is connected to a common terminal 11. The substrate 23 is labeled with a P-type region 4 and an N<sup>+</sup> region 5. The substrate 23 is also labeled with a P-type region 4 and an N<sup>+</sup> region 5.

FIG. 18

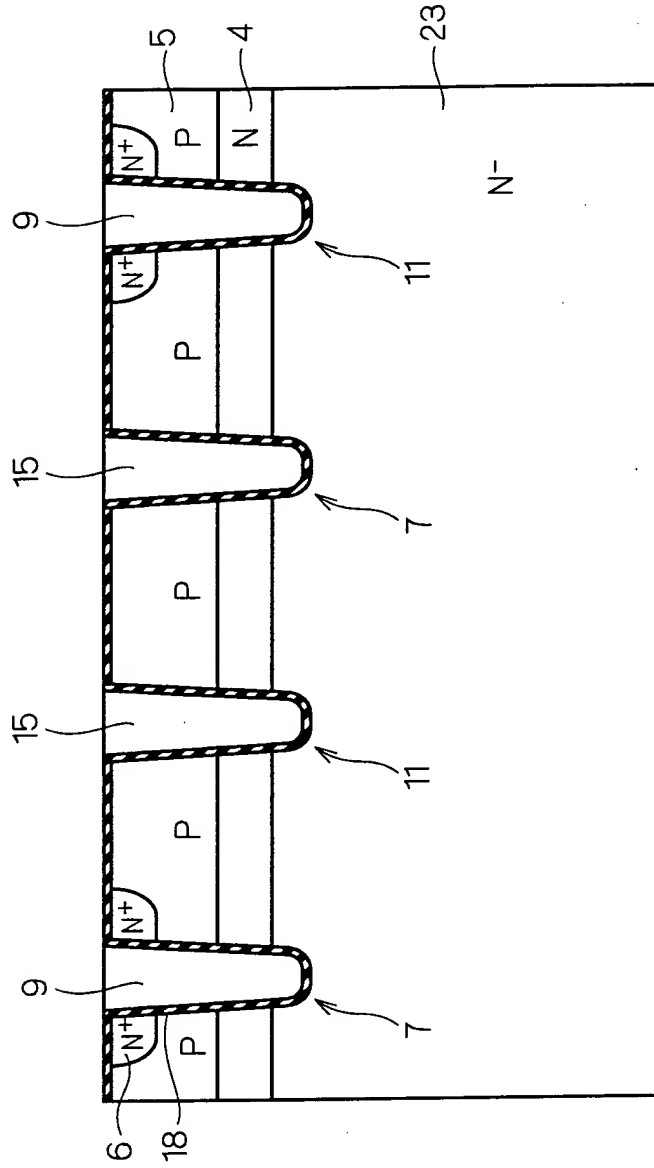
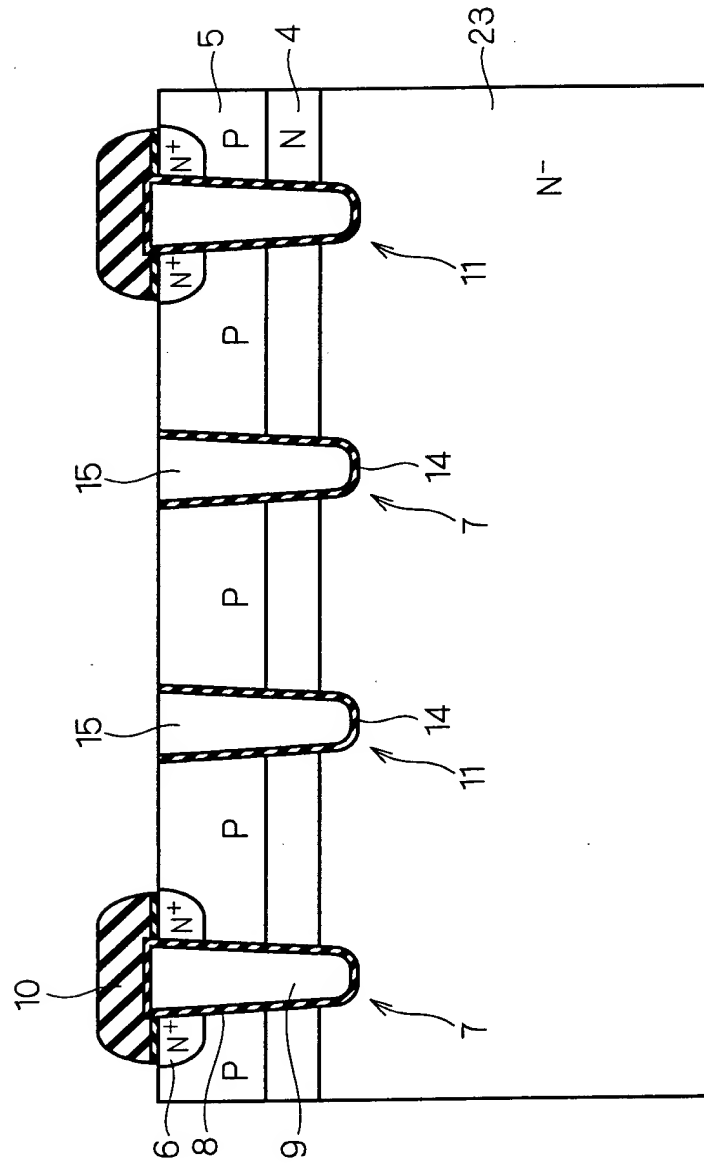


FIG. 19



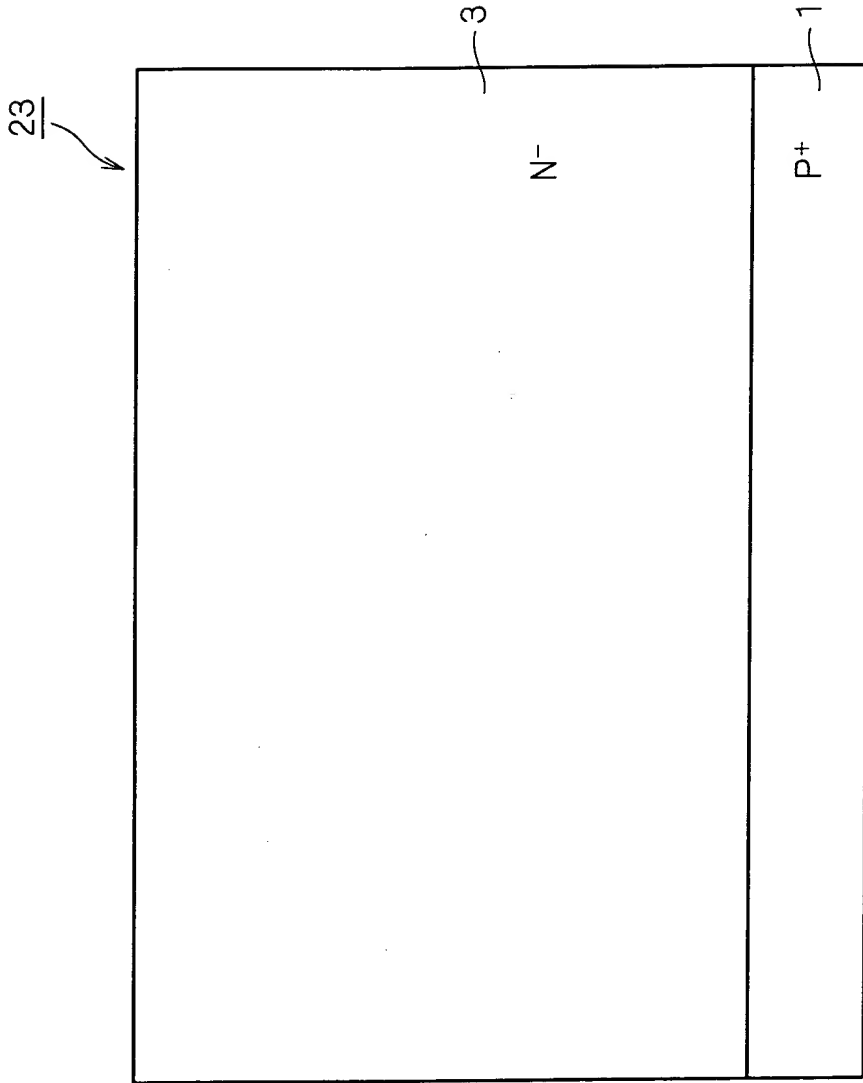
This diagram shows a cross-section of a semiconductor device. It features a substrate with a P-type region (4) and an N-type region (23). Three vertical structures are formed on the surface. The leftmost structure (9) and the rightmost structure (10) have a base layer (6) with N+ regions (8) and a top layer (12) with a hatched pattern. The middle structure (14) has a base layer (15) with P regions and a top layer (14) with a dashed pattern. The N-type region (23) is labeled with N-.

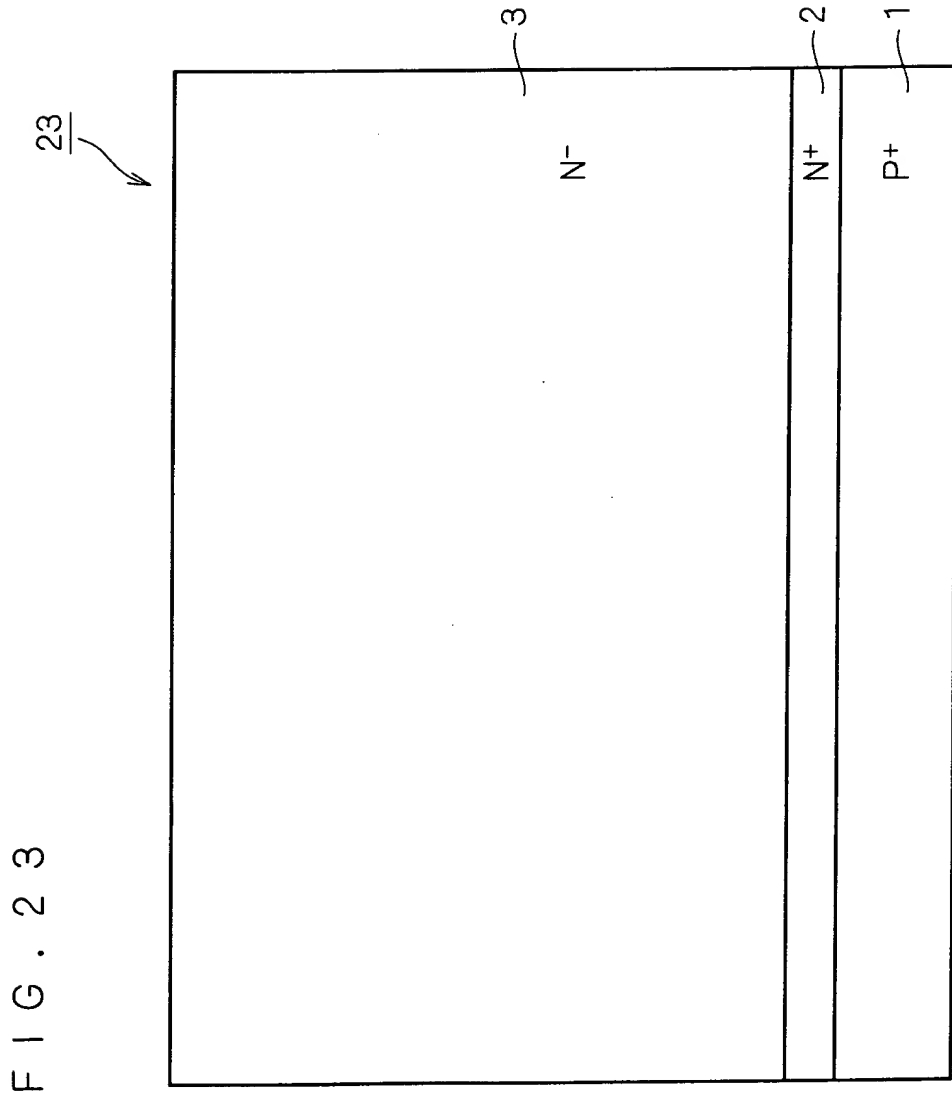
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FIG. 21



FIG. 22





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FIG. 24

FIG. 24

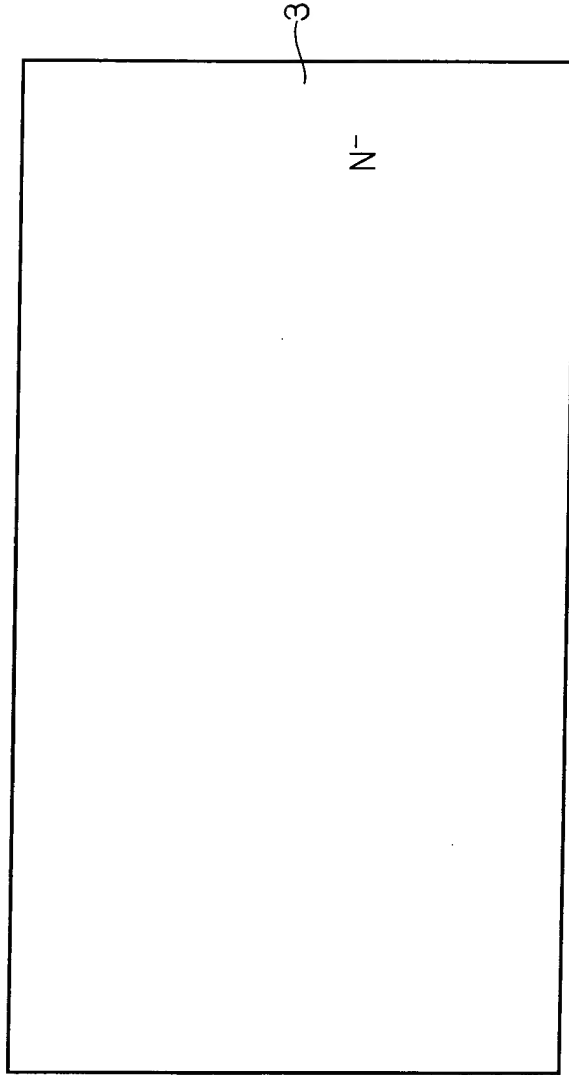




FIG. 25

FIG. 25

23

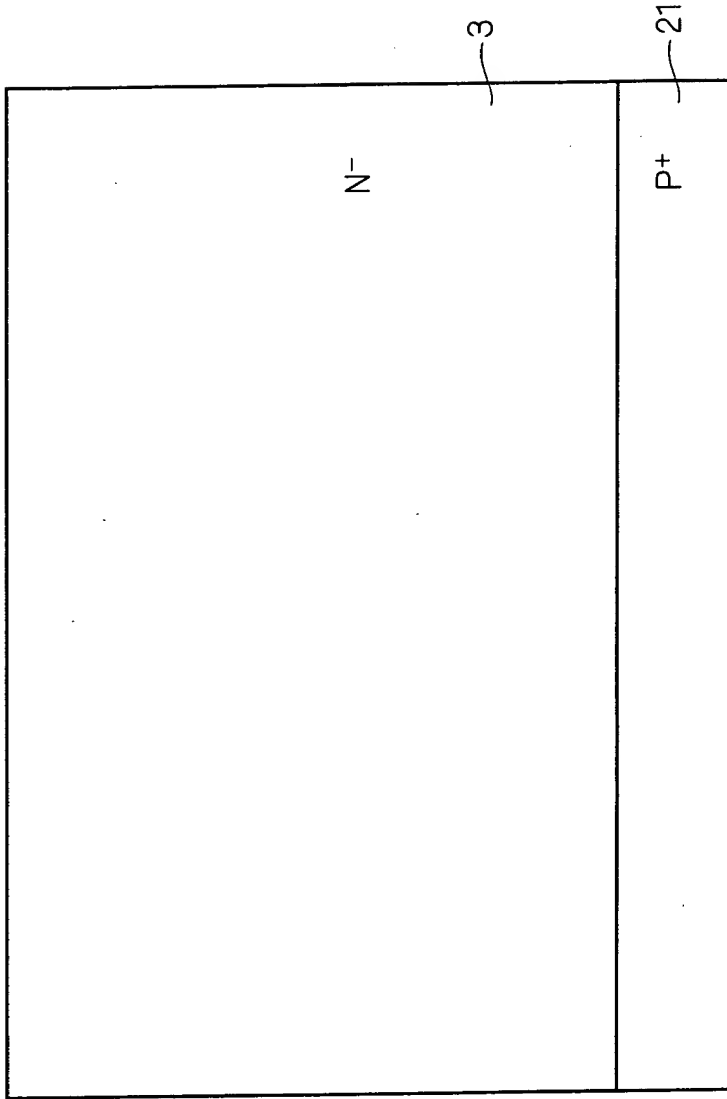
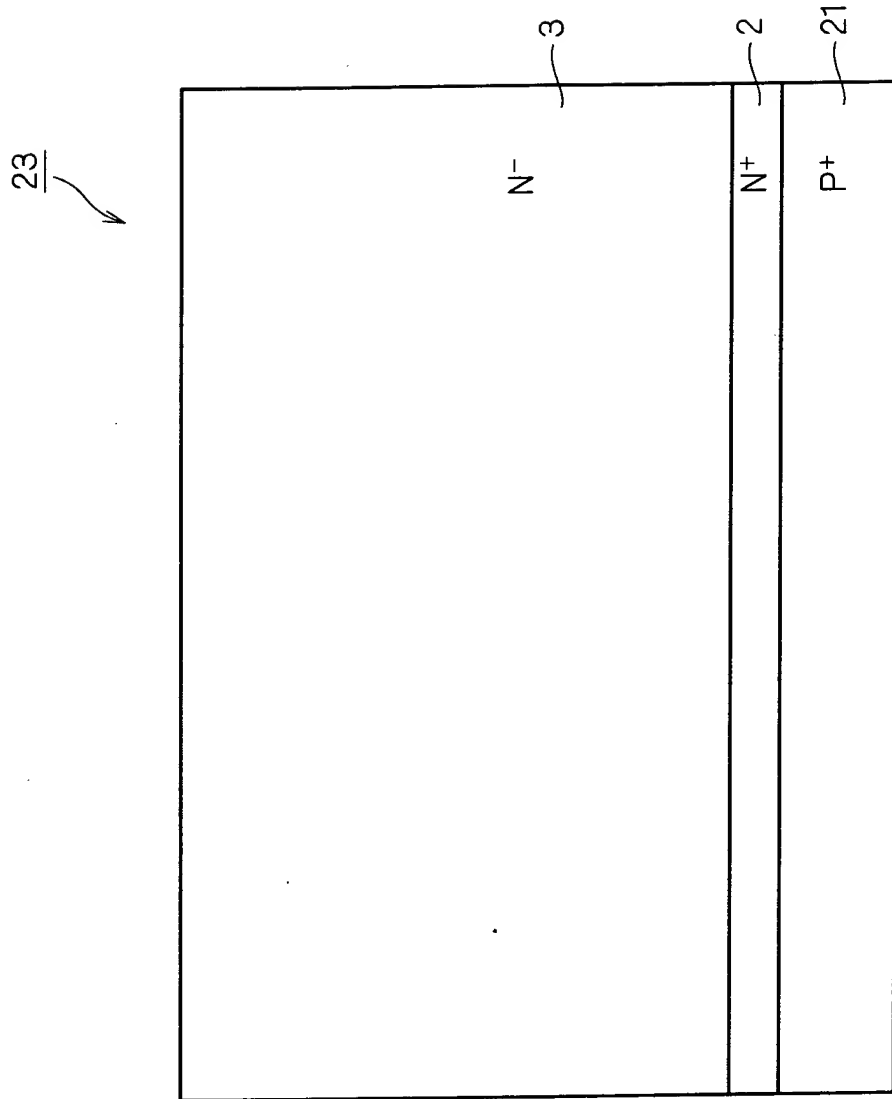


FIG. 26



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FIG. 27

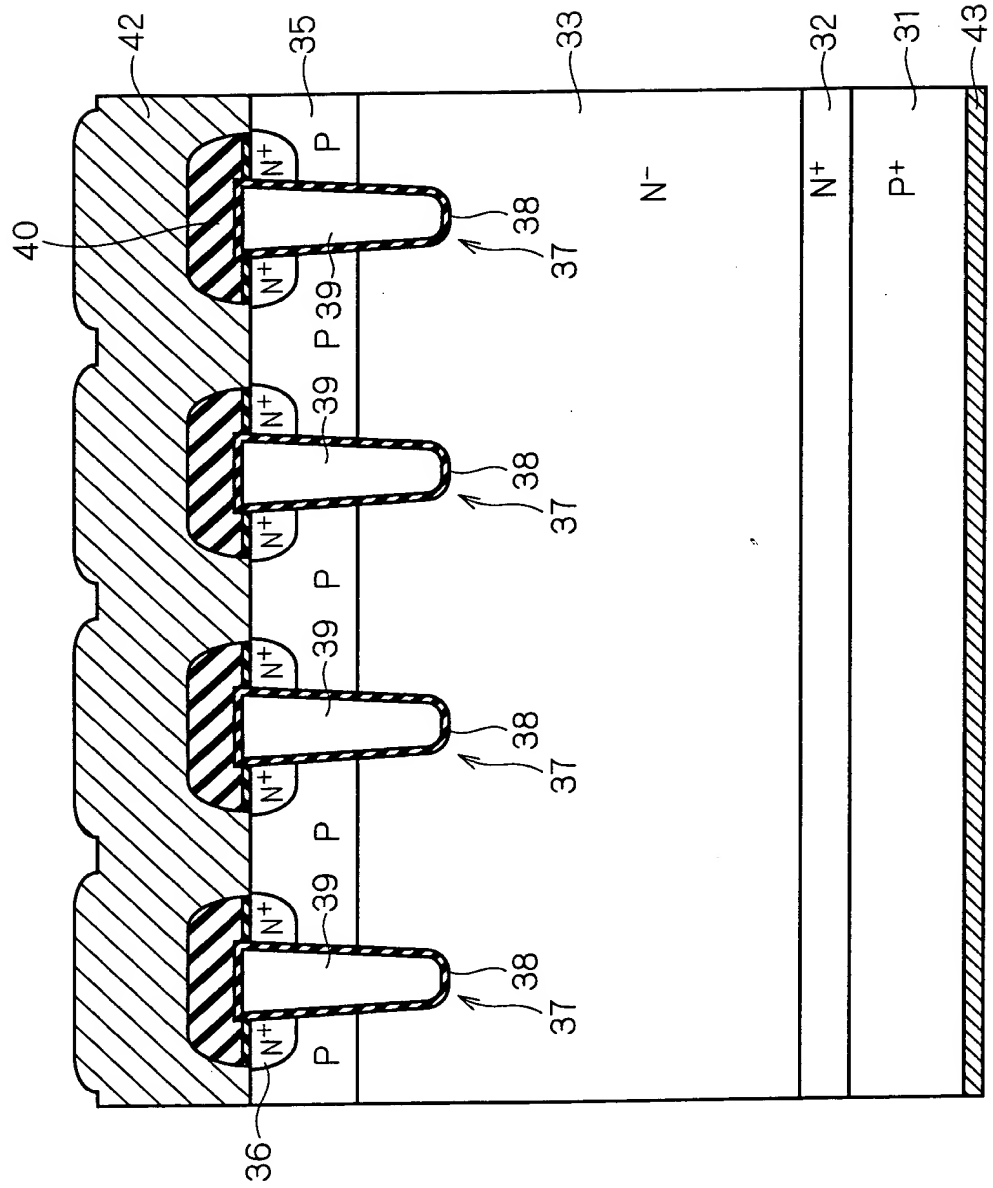


FIG. 28

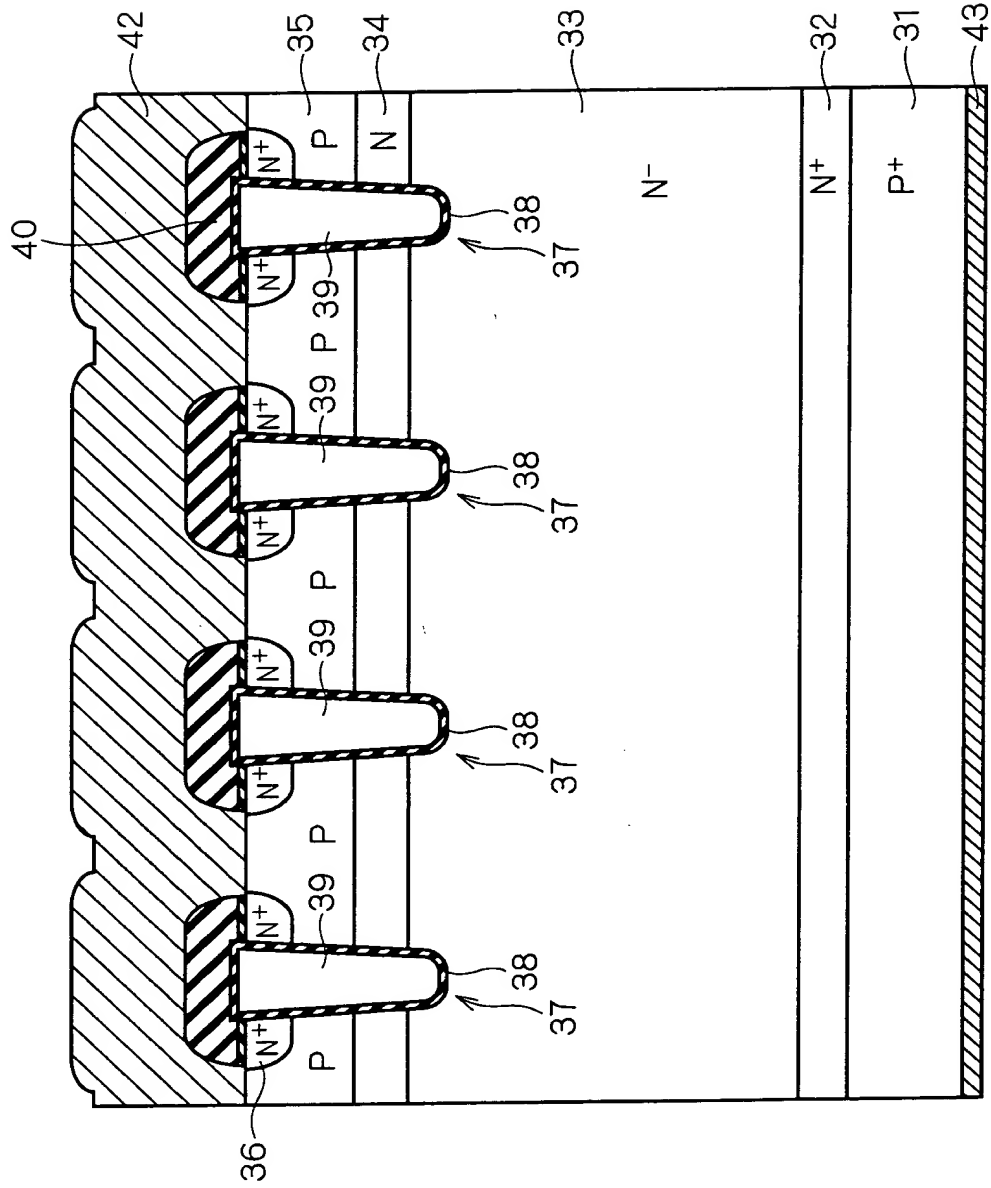
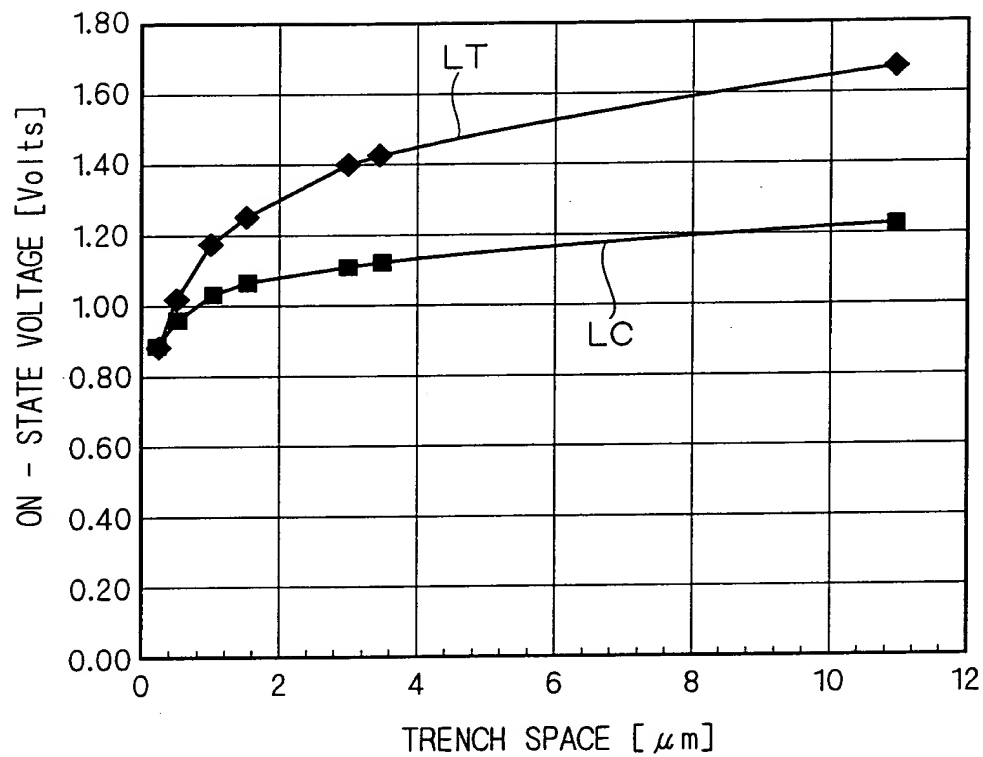


FIG. 28

FIG. 29



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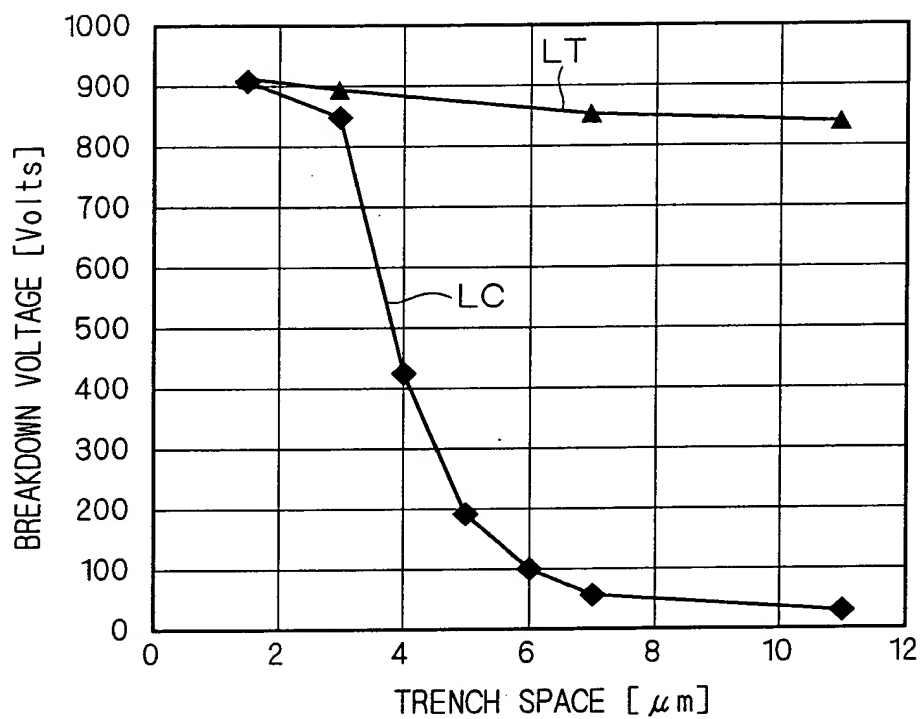


FIG. 31

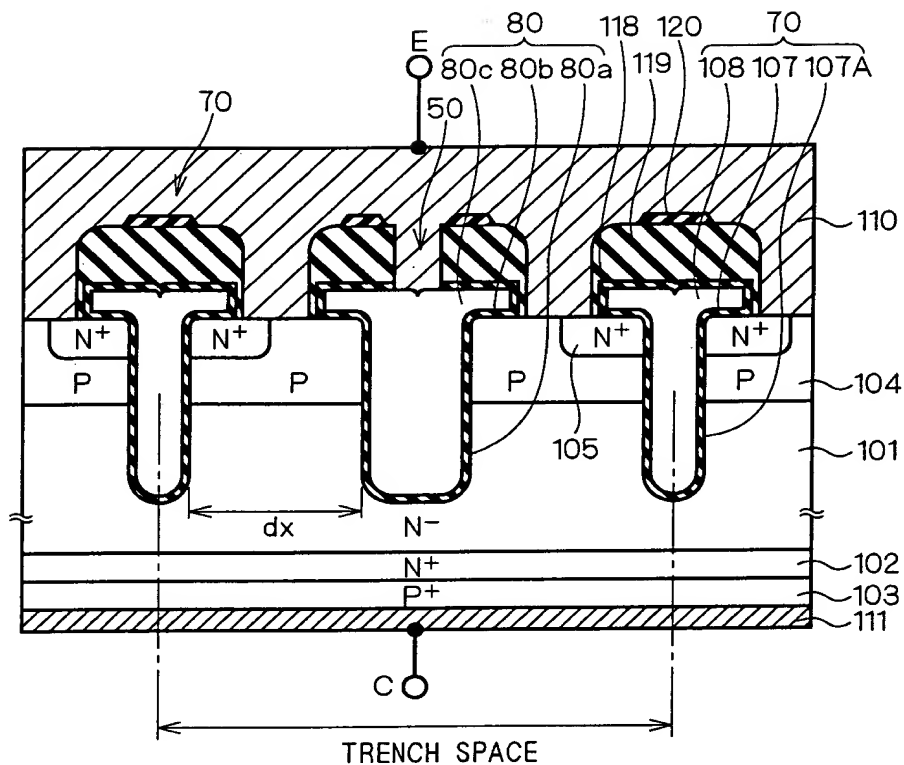


FIG. 31

FIG. 32

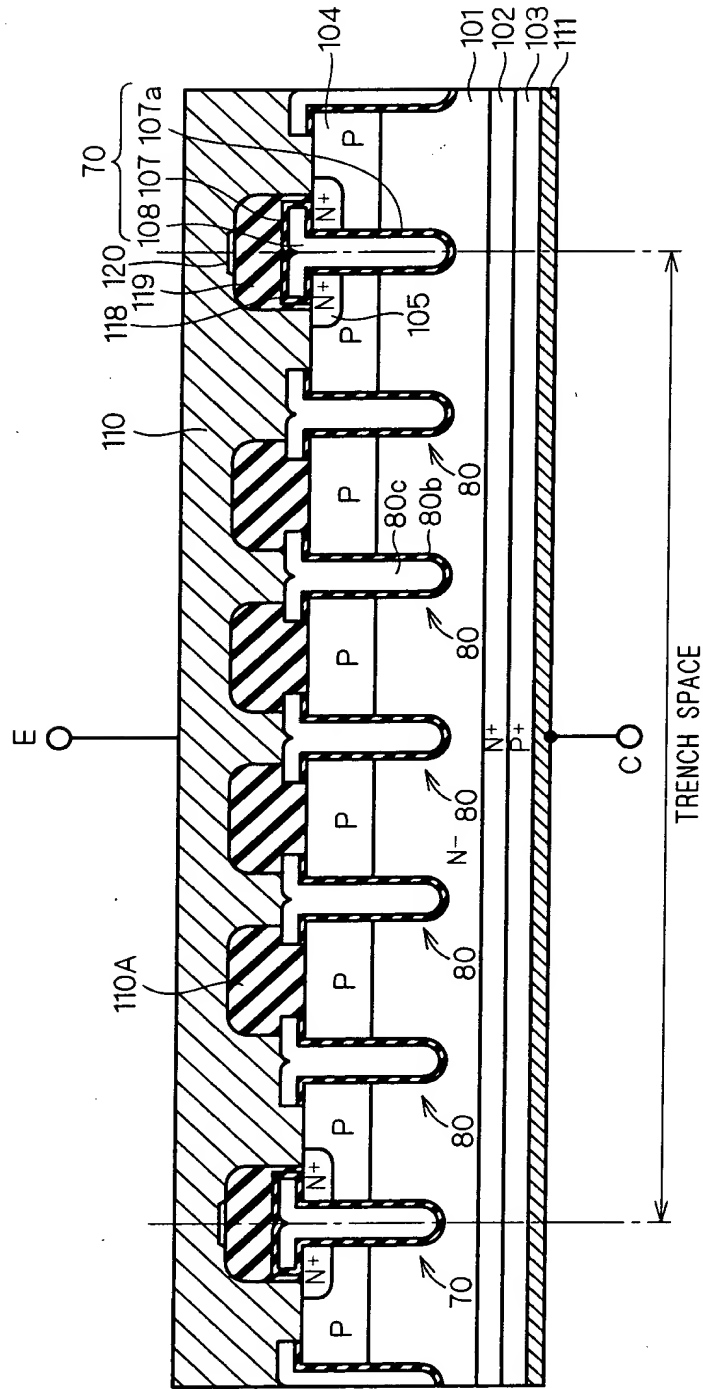


FIG. 32